

ABSTRACT

The influence of anaerobic interval training to increase numbers mitochondria remains controversial. Physiobiological approach was used in this study to investigate the effect of anaerobic interval training to increase the numbers of mitochondria. The purpose this study to observe the influence of anaerobic interval training toward numbers mitochondria. The study applied "*Randomized Posttest Only Control Group Design*". The samples were 42 male and 10 weeks old wistar strain *rattus norvegicus* rats. The samples divide into 3 groups: (1) control group, no treatment, (2) the first group (4 weeks), (3) the second group (8 weeks). The treatment swimming program during 8 weeks with frequency 3 per weeks, 2 repetition. The data of mitochondria count were taken after training program. The mitochondria count conducted manually on a light microscope. The result showed that after anaerobic interval training program there was an increase the numbers of mitochondria as indicated in control group (8.21 ± 1.19), the first group, 4 weeks (11.64 ± 0.93) and the second group, 8 weeks (15.14 ± 1.23). Analize showed in mitochondria variabel revealed significant difference ($p < 0.05$). In general, effect of anaerobic interval training presenting as change the numbers of mitochondria (1) anaerobic interval training program during 4 weeks, 3/weeks, 2 repetition, increase the numbers mitochondria 29.47%. (2) anaerobic interval training program during 8 weeks, 3/weeks, 2 repetition, increase the numbers mitochondria 45.77%. (3) anaerobic interval training program during 8 weeks more increase the numbers of mitochondria than the anaerobic interval training program during 4 weeks. The everage increase the numbers of mitochondria per-4 weeks 26.29%. In conclusion, anaerobic interval training program can increase numbers of mitochondria.

Keywords: anaerobic, interval training, mitochondria.